

CLAIMS

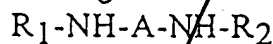
1. A process for the preparation of cross-linked polysaccharides containing carboxy groups, comprising:

- 5 a) activation of the carboxy groups of the polysaccharide by reaction with suitable carboxy activating groups in anhydrous aprotic solvent;
- b) reaction of the carboxy activated polysaccharide with a polyamine.

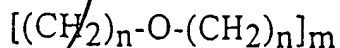
2. A process according to claim 1, wherein the polysaccharide is selected from Hyaluronic acids (obtained from tissues or bacteria),
 10 carboxymethyldextran, carboxymethylcellulose, carboxymethylstarch, alginic acids, cellulosic acid, N-carboxy-methyl or butyl glucans or chitosans; heparins with different molecular weights, optionally desulphated and succinylated, dermatan sulphates, chondroitin sulphates, heparan sulphates, polyacrylic acids. *not a polysacch! obj.*

15 3. A process according to claim 1 or 2, wherein the carboxy activating agent is selected from carbonyldiimidazole, carbonyltriazole, chloromethylpyridylum iodide (CMP-J), hydroxybenzotriazole, p-nitrophenol p-nitrophenyltrifluoroacetate, N-hydroxysuccinimide.

20 4. A process according to any one of claims 1 to 3, wherein the polyamines have the following general formula:



wherein R_1 and R_2 , which are the same or different, are hydrogen, C_1 - C_6 alkyl, phenyl or benzyl groups, A is a C_2 - C_{10} alkylene chain, preferably a C_2 - C_6 alkylene chain, optionally substituted by hydroxy, carboxy, halogen,
 25 alkoxy, amino groups; a polyoxyalkylene chain of formula



wherein n is 2 or 3 and m is an integer from 2 to 10; a C_5 - C_7 cycloalkyl group; an aryl or hetaryl group, preferably 1,3 or 1,4-disubstituted benzene.

5. A process according to any one of claims 1 to 4, wherein the

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polysaccharide is salified with lipophilic cations.

→ 6. A process according to claim 5, wherein the lipophilic cation is tributyl or tetralkyl ammonium.

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7. A process according to any one of claims 1 to 6, wherein the cross-linking reaction is carried out in anhydrous dimethylformamide or tetrahydrofuran.

8. A process according to any one of claims 1 to 7, wherein the obtained cross-linked polysaccharide is further subjected to sulfation of the hydroxy groups by reaction with the pyridine/sulfur trioxide complex.

reg 10 → 9. A process according to claim 8, wherein the sulfation reaction is carried out in dimethylformamide in heterogeneous phase at 0-10°C for times from about 0.5 to about 6 hours.

10. A process according to any one of claims 1 to 9, wherein the cross-linked, optionally sulfated polysaccharide, is further subjected to complexation reaction with aqueous solutions of copper, zinc or iron ions.

11. Cross-linked polysaccharides obtainable by the process of claims 1 to 10.

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